



MATERIAL SAFETY DATA SHEET

ORTHENE® Turf, Tree & Ornamental Spray

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This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OF MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products is regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling. All necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ORTHENE® Turf, Tree & Ornamental Spray
PRODUCT NUMBER(S): 69800
EPA REGISTRATION NUMBER: 59639-26
SYNONYM(S): Orthene TTOS

MANUFACTURER
VALENT USA CORPORATION
P.O. Box 8025
1333 N. California Blvd, Suite 600
Walnut Creek, CA 94596-8025

EMERGENCY TELEPHONE NUMBERS
HEALTH EMERGENCY OR SPILL (24 hr):
(800) 892-0099
TRANSPORTATION (24 hr): CHEMTREC
(800) 424-9300 or (202) 483-7616

PRODUCT INFORMATION
AGRICULTURAL PRODUCTS: (800) 6VALENT
PROFESSIONAL PRODUCTS: (800) 89VALENT

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name (CAS #) [Chemical Name]	Percent	Exposure Limit	Ref.
ACEPHATE* (30560-19-1) [O,S-DIMETHYL ACETYLPHOSPHORAMIDOTHIOATE]	78.400		
INERT INGREDIENTS**	21.600		

Active Ingredient

- ** Inert ingredients, which are maintained as trade secrets, are any substance other than an active ingredient contained in this product. Some of these may be hazardous, but their identity is withheld because they are considered trade secrets. The hazards associated with the inert ingredients are addressed in this document. Specific information on inert ingredients for the management of exposures, spills, or safety assessments can be obtained by a treating physician or nurse by calling 1-800-892-0099 at any time.

SECTION 8: HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

- CAUTION:**
- HARMFUL IF SWALLOWED
 - CAUSES EYE IRRITATION
 - AVOID BREATHING DUST OR SPRAY MIST
 - AVOID CONTACT WITH EYES, SKIN, OR CLOTHING
 - KEEP OUT OF REACH OF CHILDREN

POTENTIAL HEALTH EFFECTS

Acute Toxicity (Primary Routes of Exposure)

Signs and Symptoms of Systemic Effects: See below.

Eye: This substance is slightly irritating to the eyes and could cause prolonged (days) impairment of your vision. The degree of the injury will depend on the amount of material that gets into the eye and the speed and thoroughness of the first aid treatment. Signs and symptoms may include pain, tears, swelling, redness, and blurred vision. May produce systemic toxicity by absorption through the eyes.

Skin: This substance is not expected to cause prolonged or significant skin irritation.

If absorbed through the skin, this substance is considered practically non-toxic to internal organs.

Ingestion: This substance is slightly toxic to internal organs if swallowed. The degree of injury will depend on the amount absorbed from the gut. Signs and symptoms which may be seen usually within 12 hours following overexposure, may include, but not be limited to, headache, dizziness, weakness, constriction of the pupil of the eye, blurred or dark vision, excessive salivation or nasal discharge, profuse sweating, abdominal cramps, nausea, and vomiting. Incontinence, unconsciousness, and convulsions indicate severe poisoning. In untreated severe poisoning, respiratory depression or cardiac arrest may be fatal.

Inhalation: The inhalation toxicity of this substance has not been determined. However, it may be slightly toxic to internal organs if inhaled. The degree of injury will depend on the airborne concentration and duration of exposure. Signs and symptoms which may be seen, usually within 12 hours following overexposure, may include, but not be limited to, headache, dizziness, weakness, constriction of the pupil of the eye, blurred or dark vision, excessive salivation or nasal discharge, profuse sweating, abdominal cramps, nausea and vomiting. Incontinence, unconsciousness and convulsions indicate severe poisoning. In untreated severe poisoning, respiratory depression or cardiac arrest may be fatal. This substance may be irritating if inhaled. Signs and symptoms of respiratory tract irritation may include, but may not be limited to, one or more of the following:

nasal discharge, sore throat, coughing, bronchitis, pulmonary edema and difficulty in breathing. This hazard evaluation is based on data from similar materials.

Chronic Toxicity (Including Cancer): High doses of Acephate have produced cancer in mice but there is no evidence that Acephate causes cancer in humans.

Teratology (Birth Defects) Information: There is no evidence that Acephate causes birth defects.

Reproduction Information: There is no evidence that Acephate causes reproductive effects in humans.

Potentially Aggravated Condition: NDA

For complete discussion of the toxicology data from which this evaluation was made, refer to Section 11.

SECTION 4: FIRST AID MEASURES

EMERGENCY NUMBER (800) 892-0089

EYES: Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. No additional first aid should be necessary. However, if irritation persists, see a doctor.

SKIN: No first aid procedures are required. As a precaution, wash skin thoroughly with soap and water. Remove and wash contaminated clothing.

INGESTION: If swallowed, drink 1 or 2 glasses of water (or milk) and induce vomiting by touching the back of the throat with finger. If possible, contact a physician, Poison Control Center, or emergency center before inducing vomiting. Do not induce vomiting or give anything by mouth to an unconscious person. Take person and product container to the nearest emergency treatment center.

INHALATION: If respiratory discomfort or irritation occurs, move the person to fresh air. See a doctor if discomfort or irritation continues.

NOTES TO PHYSICIAN: This material contains a cholinesterase inhibitor. Measurement of blood cholinesterase activity may be useful in monitoring exposure but decisions regarding treatment will usually need to be made before test results are available. If signs of cholinesterase inhibition appear, atropine sulfate is antidotal. 2-PAM (PROTAPAM) is also antidotal and may be used in conjunction with atropine but should not be used alone.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: NA **METHOD:** NA
AUTOIGNITION: NA
EXTINGUISHING MEDIA: CO₂, dry chemical, foam, water fog.
FLAMMABLE LIMITS (% by volume in air): Lower: NA Upper: NA

NFPA RATINGS: Health 1; Flammability 1; Reactivity NDA; Special NDA
(Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association, NFPA.

OTHER CONSIDERATIONS: NDA

FIRE FIGHTING INSTRUCTIONS: Products of combustion from fires involving this material may be toxic. Avoid breathing smoke and mists. Avoid personnel and equipment contact with fallout and runoff. Minimize

the amount of water used for fire fighting. Do not enter any enclosed area without full protective equipment, including self-contained breathing equipment. Contain and isolate runoff and debris for proper disposal. Decontaminate personal protective equipment and fire fighting equipment before reuse. Read the entire document.

HAZARDOUS COMBUSTION PRODUCTS: Normal combustion forms carbon dioxide, water vapor and may produce oxides of sulfur, nitrogen and phosphorous. Incomplete combustion can produce carbon monoxide.

SECTION 6: ACCIDENTAL RELEASE MEASURES

VALENT EMERGENCY PHONE NUMBER: (800) 882-0099

CHEMTREC EMERGENCY PHONE NUMBER: (800) 424-9300

OBSERVE PRECAUTIONS IN SECTION 8: PERSONAL PROTECTION

Stop the source of the spill if safe to do so. Contain the spill to prevent further contamination of the soil, surface water, or ground water.

FOR SPILLS ON LAND:

CONTAINMENT: Reduce airborne dust. Avoid runoff into storm sewers or other bodies of water.

CLEANUP: Clean up spill immediately. Vacuum or sweep up material and place in a disposable container. Wash area with soap and water. Pick up wash liquid with additional absorbent and place in a disposable container.

FOR SPILLS IN WATER:

CONTAINMENT: This material will quickly dissolve in water. Stop the source of the release. Contain and isolate to prevent further release into soil, surface water and ground water. Notify and consult with appropriate regulatory authorities.

CLEANUP: Cleanup spill immediately. Absorb spill with inert material. Vacuum or sweep up and place into a disposable container. For further information, call 1-800-882-0099.

SECTION 7: HANDLING AND STORAGE

END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING. READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH LABEL PRECAUTIONARY STATEMENTS AND DIRECTIONS.

Keep pesticide in original container. Do not store or transport near food or feed. Do not put concentrate into food or drink containers. Do not dilute concentrate in food or drink containers. Do not store diluted spray. Store in cool, dry place, out of direct sunlight.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

EYE PROTECTION: Do not get this material in your eyes. Eye contact can be avoided by wearing chemical goggles.

RESPIRATION/VENTILATION: Wear approved respiratory protection when working with this material unless ventilation is adequate to keep airborne concentrations below recommended exposure standards.

- Use adequate ventilation to keep the airborne concentrations of this material below the recommended exposure standard.

SKIN PROTECTION: No special skin protection is usually necessary. Avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing protective clothing.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	White powder with a strong cabbage-like or mercaptan-type odor.
ODOR:	NDA
MELTING POINT:	NA
BOILING POINT:	NA
DENSITY/BULK DENSITY/ SPECIFIC GRAVITY:	NDA
SOLUBILITY:	Soluble in water; moderately soluble in alcohol and acetone. Slightly soluble in aromatic solvents.
VAPOR PRESSURE:	NA
DISSOCIATION CONSTANT:	NDA
OCTANOL/WATER PARTITION COEFFICIENT:	NDA
Ph:	NDA
VISCOSITY:	NDA
MISCIBILITY:	NDA
CORROSION CHARACTERISTICS:	NDA
EVAPORATION RATE:	NDA

SECTION 10: STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable at temperatures below 180°F (82°C).

INCOMPATIBILITY: Avoid contact with alkaline materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Contact with alkaline materials including hypochlorite oxidants, may produce noxious gases.

HAZARDOUS POLYMERIZATION: Polymerization will not occur.

IMPACT EXPLODABILITY: NDA

OXIDATION/REDUCTION PROPERTIES: NDA

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE (Product Specific Information):

Eye Irritation: Minimal irritation clearing within 7 days.

Skin Irritation: No irritation at 72 hours after exposure.

Dermal Toxicity: No product toxicology data available. The hazard evaluation was based on data on the components. The dermal LD₅₀ of Acephate in rabbits is > 10 g/kg.

Oral Toxicity: No product toxicology data available. The hazard evaluation was based on data on the components. The oral LD₅₀ of Acephate in male rats is 1447 mg/kg. The oral LD₅₀ of Acephate in female rats is 1030 mg/kg.

Inhalation Toxicity: The 1-hour LC₅₀ in rats is > 12.1 mg/L.

Skin Sensitization: No product toxicology data available. The hazard evaluation was based on data on the components. The active ingredient, Acephate, did not induce a positive skin sensitization reaction in the guinea pig using the Modified Buehler or the Maximization techniques.

SUBCHRONIC: The most significant treatment related effect of Acephate is a decrease in cholinesterase activity of plasma, RBC, and brain.

CHRONIC/CARCINOGENICITY: When mice were fed diets containing Acephate throughout their entire lifetime, a compound-related increase in liver weight, together with liver carcinoma (a commonly occurring cancer in mice) occurred in high-dose females. These changes were not observed in the males at any dose level or in low- or mid-dose females. When rats were fed diets containing Acephate throughout their entire lifetime, there was no treatment-related increase in tumors at any site. The most significant treatment-related effect was a decrease in cholinesterase activity of plasma, RBC, and brain.

TERATOLOGY/DEVELOPMENTAL TOXICITY: There is no evidence that Acephate causes birth defects.

REPRODUCTION: When male and female rats were fed Acephate continuously for two generations through weaning of the third generation, animals in the mid- and high-dose groups demonstrated compound-related effects on reproductive performance. The low-dose was judged to be a no-effect level.

MUTAGENICITY: Acephate has been shown to have a weak potential to cause mutations when tested in microbes or cultured cells and in some studies using mice. However, the results of most live animal studies indicate that Acephate does not cause mutations in whole animals.

OTHER: The significance of the above-mentioned results cannot be fully evaluated for humans. However, based on the dose-response observed in these studies and risk evaluation of the results, it is concluded that the risk of developing cancer or other adverse health effects is minimal if one follows the precautions outlined on the product label, material safety data sheet and any plant safety instructions.

SECTION 12: ECOLOGICAL INFORMATION

AVIAN TOXICITY: Acephate is moderately toxic to birds.

Oral LD₅₀ Mallard Duck: 350 mg/kg

Oral LD₅₀ Pheasant: 140 mg/kg

Oral LD₅₀ Chickens: 852 mg/kg

In addition, Acephate in the diet causes adverse effects on reproduction in mallard ducks (no effect level greater than 5 ppm, but less than 21 ppm) and in bobwhite quail (no-effect level greater than 20 ppm, but less than 80 ppm).

AQUATIC ORGANISM TOXICITY: Acephate is practically non-toxic to freshwater fish. The 96-hour LC₅₀ for Orthene Technical was found to be higher than 1,000 ppm in rainbow trout, bluegill, and channel catfish. The following LC₅₀ values for Orthene 75 S Soluble Powder substantiate the low toxicity to fish:

Bluegill: 2,050 ppm

Black Bass: 1,725 ppm

Catfish: 2,230 ppm

Mosquito Fish: 6,000 ppm

Goldfish: 9,550 ppm

Crayfish: 750 ppm

OTHER NON-TARGET ORGANISM TOXICITY: Acephate is highly toxic to bees. The acute oral LD₅₀ for bees is 1.2 ug/bee.

EMERGENCY TELEPHONE #: (800) 892-0099

NDA - No Data Available

NA - Not Applicable

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